

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/567,980
Source: IFWP
Date Processed by STIC: 03/07/2006

ENTERED



IFWP

RAW SEQUENCE LISTING

DATE: 03/07/2006

PATENT APPLICATION: US/10/567,980

TIME: 09:41:40

Input Set : E:\Final Sequence list-13477-00002-US.txt

Output Set: N:\CRF4\03072006\J567980.raw

3 <110> APPLICANT: Van Der Vossen, Edwin
 4 Allefs, Josephus
 5 Muskens, Marina
 7 <120> TITLE OF INVENTION: Fungus resistant plants and their uses
 9 <130> FILE REFERENCE: 13477-00002-US
 C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/567,980
 C--> 11 <141> CURRENT FILING DATE: 2006-02-10
 11 <150> PRIOR APPLICATION NUMBER: PCT/EP2004/008683
 12 <151> PRIOR FILING DATE: 2004-08-03
 14 <150> PRIOR APPLICATION NUMBER: EP 03018266.1
 15 <151> PRIOR FILING DATE: 2003-08-11
 17 <160> NUMBER OF SEQ ID NOS: 99
 19 <170> SOFTWARE: PatentIn version 3.3
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 3804
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Solanum bulbocastanum
 27 <220> FEATURE:
 28 <221> NAME/KEY: CDS.
 29 <222> LOCATION: (1)..(3804)
 32 <400> SEQUENCE: 1
 33 atg gaa aaa cga aaa gat aat gaa gaa gca aac aac tca ttg gag tca 48
 34 Met Glu Lys Arg Lys Asp Asn Glu Glu Ala Asn Asn Ser Leu Glu Ser
 35 1 5 10 15
 37 ttt tct gct ctt cgc aag gat gct gcc aat gtt ctg gat ttc cta gag 96
 38 Phe Ser Ala Leu Arg Lys Asp Ala Ala Asn Val Leu Asp Phe Leu Glu
 39 20 25 30
 41 aga tta aag aat gaa gaa gat caa aag gct gtt gat gtg gat ctg att 144
 42 Arg Leu Lys Asn Glu Glu Asp Gln Lys Ala Val Asp Val Asp Leu Ile
 43 35 40 45
 45 gaa agc ctg aaa ttg aag ctg aca ttt att tgt aca tat gtc cag ctt 192
 46 Glu Ser Leu Lys Leu Lys Leu Thr Phe Ile Cys Thr Tyr Val Gln Leu
 47 50 55 60
 49 tct tat tcc gat ttg gag aag ttt gaa gat ata atg act aga aaa aga 240
 50 Ser Tyr Ser Asp Leu Glu Lys Phe Glu Asp Ile Met Thr Arg Lys Arg
 51 65 70 75 80
 53 caa gag gtt gag aat ctg ctt caa cca att ttg gat gat gat ggc aaa 288
 54 Gln Glu Val Glu Asn Leu Leu Gln Pro Ile Leu Asp Asp Asp Gly Lys
 55 85 90 95
 57 gac gtc ggg tgt aaa tat gtc ctt act agc ctc gcc ggt aat atg gat 336
 58 Asp Val Gly Cys Lys Tyr Val Leu Thr Ser Leu Ala Gly Asn Met Asp
 59 100 105 110
 61 gac tgt ata agc ttg tat cat cgt tct aaa tca gat gcc acc atg atg 384

CP8-6)

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62 Asp Cys Ile Ser Leu Tyr His Arg Ser Lys Ser Asp Ala Thr Met Met
63      115      120      125
65 gat gag caa ttg ggc ttc ctc ctc ttg aat ctc tct cat cta tcc aag      432
66 Asp Glu Gln Leu Gly Phe Leu Leu Leu Asn Leu Ser His Leu Ser Lys
67      130      135      140
69 cat cgt gct gaa aag atg ttt cct gga gtg act caa tat gag gtt ctt      480
70 His Arg Ala Glu Lys Met Phe Pro Gly Val Thr Gln Tyr Glu Val Leu
71 145      150      155      160
73 cag aat gta tgt ggc aac ata aga gat ttc cat gga ttg ata gtg aat      528
74 Gln Asn Val Cys Gly Asn Ile Arg Asp Phe His Gly Leu Ile Val Asn
75      165      170      175
77 tgt tgc att aag cat gag atg gtt gag aat gtc tta tct ctg ttt caa      576
78 Cys Cys Ile Lys His Glu Met Val Glu Asn Val Leu Ser Leu Phe Gln
79      180      185      190
81 ctg atg gct gag aga gta gga cgc ttc ctt tgg gag gat cag gct gat      624
82 Leu Met Ala Glu Arg Val Gly Arg Phe Leu Trp Glu Asp Gln Ala Asp
83      195      200      205
85 gaa gac tct caa ctc tcc gag cta gat gag gat gat cag aat gat aaa      672
86 Glu Asp Ser Gln Leu Ser Glu Leu Asp Glu Asp Asp Gln Asn Asp Lys
87      210      215      220
89 gac cct caa ctc ttc aag cta gca cat cta ctc ttg aag att gtt cca      720
90 Asp Pro Gln Leu Phe Lys Leu Ala His Leu Leu Leu Lys Ile Val Pro
91 225      230      235      240
93 act gaa ttg gag gtt atg cac ata tgt tat aaa act ttg aaa gct tca      768
94 Thr Glu Leu Glu Val Met His Ile Cys Tyr Lys Thr Leu Lys Ala Ser
95      245      250      255
97 act tca aca gaa att gga cgc ttc att aag aag ctc ctg gaa acc tct      816
98 Thr Ser Thr Glu Ile Gly Arg Phe Ile Lys Lys Leu Leu Glu Thr Ser
99      260      265      270
101 ccg gac att ctc aga gaa tat ctg att cat cta caa gag cat atg ata      864
102 Pro Asp Ile Leu Arg Glu Tyr Leu Ile His Leu Gln Glu His Met Ile
103      275      280      285
105 act gtt att acc cct aac act tca ggg gct cga aac att cat gtc atg      912
106 Thr Val Ile Thr Pro Asn Thr Ser Gly Ala Arg Asn Ile His Val Met
107      290      295      300
109 atg gaa ttc cta ttg att att ctt tct gat atg ccg ccc aag gac ttt      960
110 Met Glu Phe Leu Leu Ile Ile Leu Ser Asp Met Pro Pro Lys Asp Phe
111 305      310      315      320
113 att cat cat gac aaa ctt ttt gat ctc ttg gct cgt gtt gta gca ctt      1008
114 Ile His His Asp Lys Leu Phe Asp Leu Leu Ala Arg Val Val Ala Leu
115      325      330      335
117 acc agg gag gta tca act ctt gta cgc gac ttg gaa gag aaa tta agg      1056
118 Thr Arg Glu Val Ser Thr Leu Val Arg Asp Leu Glu Glu Lys Leu Arg
119      340      345      350
121 att aaa gag agt act gac gaa aca aat tgt gca acc cta aag ttt ctg      1104
122 Ile Lys Glu Ser Thr Asp Glu Thr Asn Cys Ala Thr Leu Lys Phe Leu
123      355      360      365
125 gaa aat att gaa ctc ctt aag gaa gat ctc aaa cat gtt tat ctg aaa      1152
126 Glu Asn Ile Glu Leu Leu Lys Glu Asp Leu Lys His Val Tyr Leu Lys

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127      370      375      380
129 gtc ccg gat tca tct caa tat tgc ttc ccc atg agt gat gga cct ctc      1200
130 Val Pro Asp Ser Ser Gln Tyr Cys Phe Pro Met Ser Asp Gly Pro Leu
131 385      390      395      400
133 ttc atg cat ctg cta cag aga cac tta gat gat ttg ctg gat tcc aat      1248
134 Phe Met His Leu Leu Gln Arg His Leu Asp Asp Leu Leu Asp Ser Asn
135      405      410      415
137 gct tat tca att gct ttg ata aag gaa caa att ggg ctg gtg aaa gaa      1296
138 Ala Tyr Ser Ile Ala Leu Ile Lys Glu Gln Ile Gly Leu Val Lys Glu
139      420      425      430
141 gac ttg gaa ttc ata aga tct ttt ttc gcg aat att gag caa gga ttg      1344
142 Asp Leu Glu Phe Ile Arg Ser Phe Phe Ala Asn Ile Glu Gln Gly Leu
143      435      440      445
145 tat aaa gat ctc tgg gaa cgt gtt cta gat gtg gca tat gag gca aaa      1392
146 Tyr Lys Asp Leu Trp Glu Arg Val Leu Asp Val Ala Tyr Glu Ala Lys
147      450      455      460
149 gat gtc ata gat tca att att gtt cga gat aat ggt ctc tta cat ctt      1440
150 Asp Val Ile Asp Ser Ile Ile Val Arg Asp Asn Gly Leu Leu His Leu
151 465      470      475      480
153 att ttc tca ctt ccc att acc aga aag aag atg atg ctt atc aaa gaa      1488
154 Ile Phe Ser Leu Pro Ile Thr Arg Lys Lys Met Met Leu Ile Lys Glu
155      485      490      495
157 gag gtc tct gat tta cat gag aac att tcc aag aac aga ggt ctc atc      1536
158 Glu Val Ser Asp Leu His Glu Asn Ile Ser Lys Asn Arg Gly Leu Ile
159      500      505      510
161 gtt gtg aac tct ccc aag aaa cca gtt gag agc aag tca ttg aca act      1584
162 Val Val Asn Ser Pro Lys Lys Pro Val Glu Ser Lys Ser Leu Thr Thr
163      515      520      525
165 gat aaa ata att gta ggt ttt ggt gag gag aca aac ttg ata ctt aga      1632
166 Asp Lys Ile Ile Val Gly Phe Gly Glu Glu Thr Asn Leu Ile Leu Arg
167      530      535      540
169 aag ctc acc agt gga ccg gca gat cta gat gtc att tcg atc att ggt      1680
170 Lys Leu Thr Ser Gly Pro Ala Asp Leu Asp Val Ile Ser Ile Ile Gly
171 545      550      555      560
173 atg ccg ggt tta ggt aaa act act ttg gcg tac aaa gta tac aat gat      1728
174 Met Pro Gly Leu Gly Lys Thr Thr Leu Ala Tyr Lys Val Tyr Asn Asp
175      565      570      575
177 aaa tca gtt tct agc cat ttc gac ctt cgt gca tgg tgc acg gtc gac      1776
178 Lys Ser Val Ser Ser His Phe Asp Leu Arg Ala Trp Cys Thr Val Asp
179      580      585      590
181 caa gta tat gac gag aag aag ttg ttg gat aaa att ttc aat caa gtt      1824
182 Gln Val Tyr Asp Glu Lys Lys Leu Leu Asp Lys Ile Phe Asn Gln Val
183      595      600      605
185 agt gac tca aat tca aaa ttg agt gag aat att gat gtt gct gat aaa      1872
186 Ser Asp Ser Asn Ser Lys Leu Ser Glu Asn Ile Asp Val Ala Asp Lys
187      610      615      620
189 cta cgg aaa caa ttg ttt gga aag agg tat ctt att gtc tta gat gac      1920
190 Leu Arg Lys Gln Leu Phe Gly Lys Arg Tyr Leu Ile Val Leu Asp Asp
191 625      630      635      640

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193	gtg	tgg	gat	act	aat	aca	tgg	gat	gag	cta	aca	aga	cct	ttt	cct	gat	1968
194	Val	Trp	Asp	Thr	Asn	Thr	Trp	Asp	Glu	Leu	Thr	Arg	Pro	Phe	Pro	Asp	
195					645					650					655		
197	ggt	atg	aaa	gga	agt	aga	att	att	ttg	aca	act	cga	gaa	aag	aaa	gtt	2016
198	Gly	Met	Lys	Gly	Ser	Arg	Ile	Ile	Leu	Thr	Thr	Arg	Glu	Lys	Lys	Val	
199				660					665						670		
201	gct	ttg	cat	gga	aag	ctc	tac	act	gat	cct	ctt	aac	ctt	cga	ttg	cta	2064
202	Ala	Leu	His	Gly	Lys	Leu	Tyr	Thr	Asp	Pro	Leu	Asn	Leu	Arg	Leu	Leu	
203				675					680						685		
205	aga	tca	gaa	gaa	agt	tgg	gag	tta	tta	gag	aaa	agg	gca	ttt	gga	aac	2112
206	Arg	Ser	Glu	Glu	Ser	Trp	Glu	Leu	Leu	Glu	Lys	Arg	Ala	Phe	Gly	Asn	
207		690					695					700					
209	gag	agt	tgc	cct	gat	gaa	cta	ttg	gat	gtt	ggt	aaa	gaa	ata	gcc	gaa	2160
210	Glu	Ser	Cys	Pro	Asp	Glu	Leu	Leu	Asp	Val	Gly	Lys	Glu	Ile	Ala	Glu	
211	705					710					715					720	
213	aat	tgt	aaa	ggg	ctt	cct	ttg	gtg	gtg	gat	ctg	att	gct	gga	atc	att	2208
214	Asn	Cys	Lys	Gly	Leu	Pro	Leu	Val	Val	Asp	Leu	Ile	Ala	Gly	Ile	Ile	
215				725						730					735		
217	gct	ggg	agg	gaa	aag	aaa	aag	agt	gtg	tgg	ctt	gaa	gtt	gta	aat	aat	2256
218	Ala	Gly	Arg	Glu	Lys	Lys	Lys	Ser	Val	Trp	Leu	Glu	Val	Val	Asn	Asn	
219				740					745						750		
221	ttg	cat	tcc	ttt	att	ttg	aag	aat	gaa	gtg	gaa	gtg	atg	aaa	gtt	ata	2304
222	Leu	His	Ser	Phe	Ile	Leu	Lys	Asn	Glu	Val	Glu	Val	Met	Lys	Val	Ile	
223				755					760						765		
225	gaa	ata	agt	tat	gac	cac	tta	cct	gat	cac	ctg	aag	cca	tgc	ttg	ctg	2352
226	Glu	Ile	Ser	Tyr	Asp	His	Leu	Pro	Asp	His	Leu	Lys	Pro	Cys	Leu	Leu	
227		770					775					780					
229	tac	ttt	gca	agt	gcg	ccg	aag	gac	tgg	gta	acg	aca	atc	cat	gag	ttg	2400
230	Tyr	Phe	Ala	Ser	Ala	Pro	Lys	Asp	Trp	Val	Thr	Thr	Ile	His	Glu	Leu	
231	785					790					795					800	
233	aaa	ctt	att	tgg	ggt	ttt	gaa	gga	ttt	gtg	gaa	aag	aca	gat	atg	aag	2448
234	Lys	Leu	Ile	Trp	Gly	Phe	Glu	Gly	Phe	Val	Glu	Lys	Thr	Asp	Met	Lys	
235				805						810					815		
237	agt	ctg	gaa	gaa	gtg	gtg	aaa	att	tat	ttg	gat	gat	tta	att	tcc	agt	2496
238	Ser	Leu	Glu	Glu	Val	Val	Lys	Ile	Tyr	Leu	Asp	Asp	Leu	Ile	Ser	Ser	
239			820						825					830			
241	agc	ttg	gta	att	tgt	ttc	aat	gag	ata	ggt	gat	tac	cct	act	tgc	caa	2544
242	Ser	Leu	Val	Ile	Cys	Phe	Asn	Glu	Ile	Gly	Asp	Tyr	Pro	Thr	Cys	Gln	
243		835					840					845					
245	ctt	cat	gat	ctt	gtg	cat	gac	ttt	tgt	ttg	ata	aaa	gca	aga	aag	gaa	2592
246	Leu	His	Asp	Leu	Val	His	Asp	Phe	Cys	Leu	Ile	Lys	Ala	Arg	Lys	Glu	
247		850					855					860					
249	aag	ttg	tgt	gat	cgg	ata	agt	tca	agt	gct	cca	tca	gat	ttg	ttg	cca	2640
250	Lys	Leu	Cys	Asp	Arg	Ile	Ser	Ser	Ser	Ala	Pro	Ser	Asp	Leu	Leu	Pro	
251	865					870					875					880	
253	cgt	caa	att	agc	att	gat	tat	gat	gat	gat	gaa	gag	cac	ttt	ggg	ctt	2688
254	Arg	Gln	Ile	Ser	Ile	Asp	Tyr	Asp	Asp	Asp	Glu	Glu	His	Phe	Gly	Leu	
255				885						890					895		
257	aat	ttt	gtc	ctg	ttc	ggt	tca	aat	aag	aaa	agg	cat	tcc	ggt	aaa	cac	2736

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258 Asn Phe Val Leu Phe Gly Ser Asn Lys Lys Arg His Ser Gly Lys His
259          900          905          910
261 ctc tat tct ttg acc ata aat gga gat gag ctg gac gac cat ctt tct      2784
262 Leu Tyr Ser Leu Thr Ile Asn Gly Asp Glu Leu Asp Asp His Leu Ser
263          915          920          925
265 gat aca ttt cat cta aga cac ttg agg ctt ctt aga acc ttg cac ctg      2832
266 Asp Thr Phe His Leu Arg His Leu Arg Leu Leu Arg Thr Leu His Leu
267          930          935          940
269 gaa tcc tct ttt atc atg gtt aaa gat tct ttg ctg aat gaa ata tgc      2880
270 Glu Ser Ser Phe Ile Met Val Lys Asp Ser Leu Leu Asn Glu Ile Cys
271 945          950          955          960
273 atg ttg aat cat ttg agg tac tta agc att ggg aca gaa gtt aaa tct      2928
274 Met Leu Asn His Leu Arg Tyr Leu Ser Ile Gly Thr Glu Val Lys Ser
275          965          970          975
277 ctg cct ttg tct ttc tca aac ctc tgg aat cta gaa atc ttg ttt gtg      2976
278 Leu Pro Leu Ser Phe Ser Asn Leu Trp Asn Leu Glu Ile Leu Phe Val
279          980          985          990
281 gat aac aaa gaa tca acc ttg ata cta tta ccg aga att tgg gat ctt      3024
282 Asp Asn Lys Glu Ser Thr Leu Ile Leu Leu Pro Arg Ile Trp Asp Leu
283          995          1000          1005
285 gta aag ttg caa gtg ctg ttc acg act gct tgt tct ttc ttt gat      3069
286 Val Lys Leu Gln Val Leu Phe Thr Thr Ala Cys Ser Phe Phe Asp
287          1010          1015          1020
289 atg gat gca gat gaa tca ata ctg ata gca gag gac aca aag tta      3114
290 Met Asp Ala Asp Glu Ser Ile Leu Ile Ala Glu Asp Thr Lys Leu
291          1025          1030          1035
293 gag aac ttg aca gca tta ggg gaa ctc gtg ctt tcc tat tgg aaa      3159
294 Glu Asn Leu Thr Ala Leu Gly Glu Leu Val Leu Ser Tyr Trp Lys
295          1040          1045          1050
297 gat aca gag gat att ttc aaa agg ctt ccc aat ctt caa gtg ctt      3204
298 Asp Thr Glu Asp Ile Phe Lys Arg Leu Pro Asn Leu Gln Val Leu
299          1055          1060          1065
301 cat ttc aaa ctc aag gag tca tgg gat tat tca aca gag caa tat      3249
302 His Phe Lys Leu Lys Glu Ser Trp Asp Tyr Ser Thr Glu Gln Tyr
303          1070          1075          1080
305 tgg ttc ccg aaa ttg gat ttc cta act gaa cta gaa aaa ctc act      3294
306 Trp Phe Pro Lys Leu Asp Phe Leu Thr Glu Leu Glu Lys Leu Thr
307          1085          1090          1095
309 gta gat ttt gaa aga tca aac aca aat gac agt ggg tcc tct gca      3339
310 Val Asp Phe Glu Arg Ser Asn Thr Asn Asp Ser Gly Ser Ser Ala
311          1100          1105          1110
313 gcc ata aat cgg cca tgg gat ttt cac ttt cct tcg agt ttg aaa      3384
314 Ala Ile Asn Arg Pro Trp Asp Phe His Phe Pro Ser Ser Leu Lys
315          1115          1120          1125
317 aga ttg caa ttg cat gaa ttt cct ctg aca tcc gat tca cta tca      3429
318 Arg Leu Gln Leu His Glu Phe Pro Leu Thr Ser Asp Ser Leu Ser
319          1130          1135          1140
321 aca ata gcg aga ctg ctg aac ctt gaa gag ttg tac ctt tat cgt      3474
322 Thr Ile Ala Arg Leu Leu Asn Leu Glu Glu Leu Tyr Leu Tyr Arg

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RAW SEQUENCE LISTING ERROR SUMMARY
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:7; Xaa Pos. 178
Seq#:8; Xaa Pos. 178
Seq#:77; N Pos. 1,10

VERIFICATION SUMMARY

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L:11 M:270 C: Current Application Number differs, Replaced Current Application No

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:1887 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:576

L:2219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:176

L:4114 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:77 after pos.:0